

# Mineral Industry Surveys

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## TUNGSTEN IN OCTOBER 1999

U.S. net production of intermediate tungsten products, including metal powder and tungsten carbide powder produced from hydrogen-reduced metal powder, was 8% lower during January through October of 1999 than net production during the same period in 1998, according to the U.S. Geological Survey.

U.S. reported consumption of ferrotungsten, tungsten metal powder, tungsten carbide powder, tungsten scrap, and other tungsten materials during the first 10 months of 1999 was 15% lower than that of the same period in 1998. These materials were used to make alloys, cemented carbides, mill products, catalysts, and pigments.

Data for U.S. imports and exports for October 1999 will be published in a subsequent issue.

### Note

All data in this report have been rounded to no more than three significant digits. Totals and percentages were calculated by using unrounded data.

### Update

On December 15, the Defense National Stockpile Center (DNSC) announced that it had awarded approximately 172 metric tons of tungsten carbide powder, 68 tons of tungsten metal powder, and 58 tons of ferrotungsten for an overall approximate value of \$2 million. The following companies were awarded tungsten materials: Globe Commodities Exchange & Distribution S.A.,

Lutry, Switzerland, Martin Alloys Corp., Linden, NJ, NAMTO Partners LLC, Ann Arbor, MI, and Osram Sylvania Inc., Towanda, PA. The award exhausted the amount of tungsten metal powder available for sale during the fiscal year that ends September 30, 2000. The next offer of tungsten carbide powder and ferrotungsten is scheduled for February 22, 2000 (Defense National Stockpile Center, 1999). The next offer of tungsten ores and concentrates is scheduled for January 25, 2000. Further information on DNSC's tungsten sales program is available from Phyllis Shockley, contracting officer, at (703) 767-5482.

Prices for tungsten ore concentrates in dollars per metric ton unit from Metal Bulletin are listed below. Prices in dollars per short ton unit were converted from metric ton unit prices and rounded to the nearest dollar. These prices represent combined prices for wolframite and scheelite ore concentrates with a minimum tungsten trioxide ( $\text{WO}_3$ ) content of 65%. The prices for November 1 to 30 are as follows:

Low—\$38/metric ton unit  $\text{WO}_3$  (\$34/short ton unit  $\text{WO}_3$ )  
High—\$48/metric ton unit  $\text{WO}_3$  (\$44/short ton unit  $\text{WO}_3$ )

### Reference Cited

Defense National Stockpile Center, 1999, Stockpile accepts tungsten offers: Fort Belvoir, VA, Defense National Stockpile Center news release, December 15, 1 p.



TABLE 1  
U.S. SALIENT TUNGSTEN STATISTICS 1/

(Metric tons, tungsten content)

Period	Concentrate			Reported scrap consumption	Intermediate products		
	Reported consumption	Imports for consumption	Stocks, end of period 2/		Net production 3/	Reported consumption 4/	Stocks, end of period 5/
1998:							
October	W	108	787	302	723	746	1,360
November	W	158	503	223	680	703	1,400
December	449	811	514	178	621	614	1,340
January-December 6/	3,210	4,750	XX	3,300	9,630	8,980	XX
1999:							
January	W	129	519	250	732	684	1,330
February	W	156	509	267	727	686	1,340
March	365	714	490	253	791	687	1,390
April	381	90	449	247	762	626	1,330
May	392	383	447	241	766	624	1,360
June	358	662	W	251	782	610	1,300
July	362	232	481	242	751	653	1,320
August	387	145	488	250	776	636	1,330
September	387	94	488	252 r/	810 r/	649 r/	1,320 r/
October	428	NA	431	242	799	631	1,290
Total 6/	3,060	NA	XX	2,490	7,700	6,490	XX

r/ Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; not included in total or year-to-date. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Reported by consumers.

3/ Net production of tungsten metal powder, tungsten carbide powder, chemicals, and other products.

4/ Includes estimates and scrap.

5/ Reported by producers.

6/ Does not include withheld data.

TABLE 2  
U.S. PRODUCTION, CONSUMPTION, AND STOCKS OF  
AMMONIUM PARATUNGSTATE, BY MONTH 1/

(Metric tons, tungsten content)

Period	Production	Consumption	Stocks, end of period 2/
1998:			
October	W	796	552
November	W	414	586
December	W	718	603
January-December 3/	838	9,210	XX
1999:			
January	W	781	621
February	W	715	566
March	W	786	523
April	W	704	521
May	W	710	541
June	W	W	634
July	W	803	556
August	W	701	548
September	W	751 r/	493 r/
October	W	738	554
Total 3/	W	6,690	XX

r/ Revised. W Withheld to avoid disclosing company proprietary data; not included in total or year-to-date. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Producers and consumers.

3/ Does not include withheld data.



TABLE 3  
U.S. PRODUCTION AND STOCKS OF TUNGSTEN PRODUCTS 1/

(Metric tons, tungsten content)

Product	Net production 2/				Stocks at end of period		
	1999				1999		
	1998	September	October	Year to date	1998	September	October
Metal powder	4,600	396 r/	390	3,660	719	693 r/	690
Tungsten carbide powder (made from metal powder)	5,040	414 r/	409	4,040	576	558 r/	551
Cast and crystalline carbide powder; other	W	W	W	W	W	W	W
Chemicals	W	W	W	W	46	65 r/	53
Total 3/	9,630	810 r/	799	7,700	1,340	1,320 r/	1,290

r/ Revised. W Withheld to avoid disclosing company proprietary data; not included in total.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross production less quantity used to make other products in table.

3/ Does not include withheld data.

TABLE 4  
U.S. REPORTED CONSUMPTION OF TUNGSTEN, BY END USE IN 1999 1/ 2/ 3/

(Metric tons, tungsten content)

End use	September	October	Year to date
Steel:			
Tool	W	W	W
Other	27	16	146
Superalloys	30 r/	27	304
Other alloys (excludes steels and superalloys) 4/	W	W	W
Cemented carbides 5/	437 r/	431	4,500
Mill products made from metal powder	107	110	1,060
Chemical uses	W	W	W
Miscellaneous and unspecified	48	48	478
Total	649 r/	631	6,490

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Does not include materials used in making primary tungsten products.

3/ Includes estimates.

4/ Includes welding and hard-facing rods and materials, wear- and corrosion-resistant alloys, and nonferrous alloys.

5/ Includes diamond bit matrices, cemented and sintered carbides, and cast carbide dies or parts.



TABLE 5  
U.S. REPORTED CONSUMPTION AND CONSUMER STOCKS OF TUNGSTEN MATERIALS 1/ 2/ 3/

(Metric tons, tungsten content)

Period	Ferro-tungsten	Tungsten metal powder	Tungsten carbide powder	Scheelite (natural, synthetic)	Tungsten scrap	Other tungsten materials 4/	Total
Consumption:							
1998:							
October	40	106	552	--	40	8	746
November	39	66	555	--	35	8	703
December	41	62	468	--	35	8	614
January-December	493	1,370	6,560	--	460	97	8,980
1999:							
January	43	108	490	--	34	10	684
February	43	110	491	--	33	9	686
March	45	115	488	--	30	9	687
April	43	116	432	--	25	9	626
May	45	118	422	--	30	9	624
June	41	114	419	--	27	10	610
July	41	118	456	--	28	10	653
August	41	115	449	--	21	10	636
September	55	117	445 r/	--	23 r/	9	649 r/
October	44	119	438	--	20	9	631
January-October	441	1,150	4,530	--	271	93	6,490
Stocks:							
1998:							
October	18	18	523	--	52	16	626
November	15	18	514	--	41	16	604
December	18	17	431	--	36	16	517
1999:							
January	29	25	416	--	28	17	514
February	25	22	403	--	32	16	498
March	27	26	419	--	26	17	515
April	26	24	410	--	20	17	497
May	27	19	406	--	20	18	490
June	33	18	404	--	19	20	493
July	31	20	414	--	18	18	501
August	36	22	401	--	24	17	500
September	19	22 r/	399	--	21 r/	17	478 r/
October	17	25	397	--	27	16	482

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Does not include materials used in making primary tungsten products.

3/ Includes estimates.

4/ Includes tungsten chemicals.



TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF TUNGSTEN, BY COUNTRY 1/

(Metric tons, tungsten content)

Period and country of origin	Ores and concentrates	Ammonium tungstates	Ferro- tungsten	Metal powder	Tungsten carbide powder	Other 2/	Total	Total year to date
1998	4,750	1,920	599	459	944	3,110	11,800	XX
1999:								
July	232	108	42	24	61	250	1,810	6,460
August	145	183	86	20	47	354	834	7,290
September:								
Australia	--	--	--	--	--	--	--	167
Austria	--	--	--	--	2	1	4	26
Belgium	--	--	--	(3/)	--	--	(3/)	2
Bolivia	44	--	--	--	--	--	44	249
Burma	--	--	--	--	--	--	--	91
Canada	--	--	--	(3/)	21	(3/)	21	315
China	--	266	13	12	14	242	547	4,120
Czech Republic	--	--	--	--	--	--	--	(3/)
Estonia	--	--	--	--	--	--	--	(3/)
France	--	--	--	--	(3/)	(3/)	(3/)	2
Germany	--	13	--	3	2	6	23	204
Hong Kong	--	--	--	--	--	--	--	1
Hungary	--	--	--	--	--	1	1	8
India	--	--	--	--	--	--	--	(3/)
Ireland	--	--	--	--	--	--	--	(3/)
Israel	--	--	--	--	11	(3/)	12	75
Italy	--	--	--	--	--	--	--	(3/)
Japan	--	--	--	1	1	3	5	34
Kazakhstan	--	--	--	--	--	--	--	461
Korea, Republic of	--	--	--	--	--	(3/)	(3/)	10
Luxembourg	--	--	--	--	--	--	--	34
Mexico	--	--	--	--	--	(3/)	(3/)	27
Mongolia	--	--	--	--	--	--	--	23
Netherlands	--	--	--	--	--	(3/)	(3/)	1
Peru	--	--	--	--	--	--	--	11
Portugal	50	--	--	--	--	--	50	266
Russia	--	--	--	--	1	60	61	1,730
Rwanda	--	--	--	--	--	--	--	27
Singapore	--	--	--	--	--	(3/)	(3/)	(3/)
South Africa	--	--	--	--	--	--	--	(3/)
Spain	--	--	--	--	--	--	--	(3/)
Sweden	--	--	--	--	(3/)	--	(3/)	34
Switzerland	--	--	--	--	--	(3/)	(3/)	3
Taiwan	--	--	--	--	(3/)	(3/)	(3/)	(3/)
Thailand	--	--	--	--	--	--	--	11
United Kingdom	--	--	--	--	--	(3/)	(3/)	135
Total	94	279	13	16	53	314	770	8,060
Total, year to date	2,610	1,670	524	224	565	2,480	8,060	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other unwrought tungsten, wrought tungsten, calcium and other tungstates, tungsten oxides, tungsten chlorides, other tungsten compounds, ash and residues containing mainly tungsten, and other mixtures of inorganic compounds containing tungsten. Tungsten content estimated in part.

3/ Less than 1/2 unit.

Note: Imports of waste and scrap in September 1999 totaled 115 metric tons, tungsten content.

Source: Bureau of the Census.



TABLE 7  
U.S. EXPORTS OF TUNGSTEN, BY COUNTRY 1/

(Metric tons, tungsten content)

Period and country of destination	Ores and concentrates 2/	Ammonium tungstates	Metal powder 2/	Tungsten carbide powder	Other 3/	Total	Total year to date
1998	10	287	851	1,240	467	2,860	XX
1999:							
July	13	45	38	70	56	222	1,280
August	3	7	60	59	40	169	1,450
September:							
Argentina	--	--	--	1	(4/)	1	2
Australia	--	--	--	(4/)	1	1	16
Austria	--	--	--	12	--	12	21
Belgium	--	--	--	--	--	--	137
Bolivia	--	--	--	--	--	--	1
Brazil	--	--	--	(4/)	1	2	37
Canada	--	--	6	10	2	18	199
Chile	--	--	--	--	--	--	3
China	--	--	--	--	1	1	3
Congo (Kinshasa)	--	--	--	--	--	--	8
Czech Republic	--	--	--	--	--	--	5
Denmark	--	--	--	--	--	--	7
Ecuador	--	--	--	--	--	--	(4/)
Finland	--	--	--	--	--	--	1
France	--	--	1	--	1	3	55
Germany	--	--	6	11	13	29	452
Hong Kong	--	--	(4/)	--	(4/)	(4/)	30
Hungary	--	--	--	--	1	1	7
India	--	--	72	(4/)	6	78	112
Indonesia	--	--	--	--	--	--	1
Ireland	--	--	--	(4/)	--	(4/)	9
Israel	--	--	--	(4/)	(4/)	(4/)	45
Italy	--	--	(4/)	2	1	3	69
Japan	--	--	4	(4/)	4	8	67
Korea, Republic of	--	--	--	--	--	--	15
Luxembourg	--	--	(4/)	3	--	3	7
Malaysia	--	--	--	(4/)	--	(4/)	1
Mexico	--	--	4	--	2	6	45
Netherlands	--	--	--	--	(4/)	(4/)	73
New Zealand	--	--	--	--	(4/)	(4/)	(4/)
Panama	--	--	--	--	--	--	1
Poland	--	--	--	--	--	--	2
Singapore	--	--	(4/)	(4/)	(4/)	1	6
South Africa	--	--	--	2	--	2	21
Spain	--	--	--	(4/)	(4/)	(4/)	6
Sweden	--	--	(4/)	--	(4/)	(4/)	71
Switzerland	--	--	1	(4/)	(4/)	1	22
Taiwan	--	--	2	--	(4/)	2	16
Thailand	--	--	--	--	--	--	1
Turkey	--	--	--	--	--	--	1
United Kingdom	3	--	1	(4/)	1	5	55
Venezuela	--	--	--	--	--	--	2
Other	--	--	--	--	(4/)	(4/)	2
Total	3	--	97	42	35	177	1,630
Total, year to date	24	102	585	547	373	1,630	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Tungsten content estimated from reported gross weight.

3/ Includes wrought tungsten, ferrotungsten, and other tungstates. Tungsten content estimated in part.

4/ Less than 1/2 unit.

Note: Estimated exports of waste and scrap in September 1999 totaled 55 metric tons, tungsten content.

Source: Bureau of the Census.